REMARKS

Claims 1-21 were pending in the above-identified application when last examined and are amended as indicated above.

Claims 1-3, 5, 6, 9-12, and 16-20 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Pat. No. 4,757,540 (Davis) in view of U.S. patent No. 5,995,153 (Moeller). Applicant respectfully traverses the rejection.

Independent claim 1 distinguishes over the combination of Davis and Moeller at least by reciting, "time-scaling the multiple data channels, wherein for each of the frames, time scaling comprises using the offset for the interval corresponding to the frame when time scaling the frame." The combination of Davis and Moeller fails to disclose using the same offset for time scaling of corresponding frames in multiple data channels.

Davis is not directed to time scaling but is instead directed to editing of audio data. In particular, Davis describes how editing that naively selects a splice point without regard for audio content can create pops or clicks at the splice point. Davis therefore selects a splice point based on correlations between blocks of audio data before and after the splice point.

Moeller is directed to video processing including duration compression and expansion. In particular, in the abstract, Moeller describes, "The running real time length of combined video and audio signal programs is shortened or lengthened by deleting or repeating individual fields or frames and corresponding amounts of audio segments." Accordingly, Moeller performs overall time scaling of audio by adding or removing whole frames. To reduce "pops" associated with splicing audio, Moeller beginning at column 5, line 55, describes "a pitch and level detect circuit 50 selects which audio portions contain the most effective frequencies and amplitudes capable of being deleted with minimal impairment to the audio (e.g. by not introducing "pops" or "clicks" into the audio)." Moeller does not disclose or suggest time scaling frames of audio data or using offsets when time scaling frames of audio.

In regard to multi-channel audio, the Examiner indicated that "Moeller discloses a time scaling of a program signal such as NTSC" and that "One format for the NTSC standard is a stereo signal." However, neither Moeller nor Davis provides any guidance on how to handle time scaling of stereo or other multi-channel audio. In particular, Moeller and Davis fail to disclose or suggest "time scaling ... using the offset for the interval corresponding to

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the frame when time scaling the frame."

As noted in Applicant's specification, if one is primarily concerned with audio "pops" (as are both Davis and Moeller appear to be), one can independently time scale each audio channel. However, the independent time scaling of audio channels can cause the listener to perceive a movement or fluctuation in the apparent location of the sound source. Applicant has discovered that this artifact can be avoided or reduced through use of the same offset when time scaling corresponding frames from different channels of an audio signal. Davis and Moeller fail to suggest the existence of this problem when time scaling multi-channel audio, and fail to discuss Applicant's solution of "for each of the frames, ... using the offset for the interval corresponding to the frame when time scaling the frame." Accordingly, claim 1 is clearly patentable over the combination of Davis and Moeller.

Claims 2, 3, 5, 6, and 9-11 depend from claim 1 and are patentable over Davis and Moeller for at least the same reasons that claim 1 is patentable over Davis and Moeller.

Claim 5 further distinguishes over the combination of Davis and Moeller by reciting, "determining an offset for an interval comprises searching average data that results from averaging data used in time scaling processes for the multiple data channels." Claim 6 further distinguishes over the combination of Davis and Moeller by reciting, "determining an offset for an interval comprises: determining an average frame from a combination of all frames corresponding to interval; searching for a best match block that best matches the average frame; and selecting for the offset of the interval a value that identifies the best match block found for the average frame." The combination of Davis and Moeller fails to suggest averaging or combining data from multiple channels during an offset determination.

Claim 9 further distinguishes over the combination of Davis and Moeller by reciting, "determining an offset for an interval comprises: for each of a series of candidate offsets, accumulating differences between each frame corresponding to the interval and respective blocks that the candidate offset identifies." The combination of Davis and Moeller fails to suggest accumulating differences associated with different audio channels during an offset determination.

Claim 10 further distinguishes over the combination of Davis and Moeller by reciting, "determining an offset for the interval comprises extracting the offset from an augmented audio data structure that includes the frames and a set of predetermined offsets that correspond to the intervals and a set of time scales." Claim 11 further distinguishes over the combination of Davis and Moeller by reciting, "determining an offset for the interval

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comprises: accessing an augmented audio data structure that includes the frames and a set of predetermined offsets that correspond to the intervals and a set of time scales." The combination of Davis and Moeller provides no suggestion of augmented audio data structures such as recited in claims 10 and 11.

Independent claim 12 distinguishes over the combination of Davis and Moeller at least by reciting, "determining an offset that identifies a right block of samples and a left block of samples; and using the right block in generating time-scaled samples for the right channel; and using the left block in generating time-scaled samples for the left channel." As noted above, Davis and Moeller are silent as to how to process multi-channel audio data. In particular, the combination of Davis and Moeller fails to suggest determining a single offset that identifies both a left block and a right block of audio data that are used in time scaling of audio frames. Accordingly, claim 12 is patentable over the combination of Davis and Moeller.

Claims 16-20 depend from claim 12 and are patentable over the combination of Davis and Moeller for at least the same reasons that claim 12 is patentable over the combination of Davis and Moeller.

For the above reasons, Applicant requests reconsideration and withdrawal of this rejection under 35 U.S.C. § 103.

Claims 4, 13, and 14 were rejected under 35 U.S.C. § 103(a) as unpatentable over Davis in view of Moeller and further in view of U.S. Pat. App. Pub. No. 2002/0065569 (Matoba). Applicant respectfully traverses the rejection.

Claim 4 depends from claim 1 and is patentable over the combination of Davis and Moeller for at least the reasons given above to show claim 1 is patentable over Davis and Moeller. Claims 13 and 14 depend from claim 12 and are patentable over the combination of Davis and Moeller for at least the reasons given above to show claim 12 is patentable over Davis and Moeller.

Matoba is directed to reducing noise associated with thinning out of audio data. In particular, when combining data samples originally before a thinned portion with data samples originally after the thinned portion, Matoba fades the amplitudes of the before-samples while ramping up the amplitudes of the after-samples. However, Matoba like Davis and Moeller is silent regarding processing of multi-channel audio. Accordingly, combining Matoba with Davis and Moeller does not affect the above remarks showing that claims 1 and

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12 are patentable, and claims 4, 13, and 14 are patentable over the combination of Davis, Moeller, and Matoba for at least the same reasons that their respective base claims are patentable over the combination of Davis, Moeller, and Matoba.

For the above reasons, Applicant requests reconsideration and withdrawal of this rejection under 35 U.S.C. § 103.

Claims 7, 8, 15, and 21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Davis in view of Moeller and further in view of U.S. Pat. No. 5,940,573 (Beckwith). Applicant respectfully traverses the rejection.

Claims 7 and 8 depend from claim 1 and are patentable over the combination of Davis and Moeller for at least the reasons given above to show claim 1 is patentable over Davis and Moeller. Claims 15 and 21 depend from claim 12 and are patentable over the combination of Davis and Moeller for at least the reasons given above to show claim 12 is patentable over Davis and Moeller.

The Examiner cites Beckwith for disclosing use of a buffer during audio process. However, such teaching does not affect the above reasons showing that independent claims 1 and 12 are patentable. Further, Beckwith like Davis is directed to editing and not to time scaling of audio data. Accordingly, although Beckwith discloses multi-track audio, Beckwith fails to provide any guidance on how to handle time scaling of audio frames from multi-channel audio. In particular, Beckwith fails to disclose use of offsets during time scaling of audio frames or how the techniques disclosed by Davis might be applied to time scaling of multiple audio channels. Accordingly, combining Beckwith with Davis and Moeller does not affect the above reasoning showing that claims 1 and 12 are patentable. Claims 7, 8, 15, and 21 are thus patentable over the combination of Davis, Moeller, and Beckwith for at least the same reasons that their respective base claims 1 and 12 are patentable over the combination of Davis, Moeller, and Beckwith.

For the above reasons, Applicant requests reconsideration and withdrawal of this rejection under 35 U.S.C. § 103.

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In summary, claims 1-21 were pending in the application. This response amends claims 10 and 11 to improve their form. For the above reasons, Applicants respectfully request allowance of the application including claims 1-21.

Please contact the undersigned attorney at (408) 927-6700 if there are any questions

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concerning the application or this document.

Respectfully submitted,

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